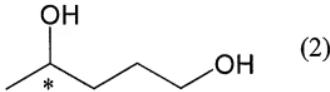


**AMENDMENTS TO THE CLAIMS**

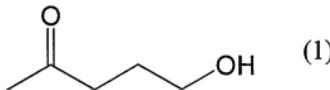
This listing of claims will replace all prior versions and listings of claims in the application:

**LISTING OF CLAIMS:**

1. (currently amended): A process for producing an optically active 1,4-pentanediol represented by formula (2):



(wherein \* represents an asymmetric carbon atom) comprising asymmetrically reducing 5-hydroxy-2-pentanone represented by formula (1):



by the action of an enzyme source having the activity of stereoselectively reducing the 5-hydroxy-2-pentanone,

wherein the enzyme source is a cultured product of a microorganism that has the activity of selectively reducing the compound represented by said formula (1) to produce the R-isomer and that belongs to genus *Candida* or genus *Devasia* and/or an enzyme obtained from any of these microorganisms, and

wherein the enzyme source that selectively produces the R-isomer is a cultured product of *Escherichia coli* HB101 (pNTS1G) (FERM BP-5835), *Escherichia coli* HB101 (pNTFPG)

(FERM BP-7117), or Escherichia coli HB101 (pNTDRG1) (FERM BP-08458) and/or an enzyme obtained from any of these microorganisms

in the presence of cultured cells, crude extract, lyophilized cells or acetone-dried cells of a microorganism, or disrupted product thereof,

wherein the microorganism has an ability to produce a reducing enzyme derived from *Candida magnoliae* IFO0705, *Candida malis* IFO10003 or *Devosia riboflavina* IFO13584,

and the microorganism has an activity to reduce said compound (1) to produce the R-isomer of said compound (2), or

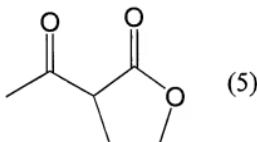
the microorganism has an ability to produce a reducing enzyme derived from *Rhodococcus* sp. KNK01, or *Rhodotorula glutinis* IFO415, and the microorganism has an activity to reduce said compound (1) to produce the S-isomer of said compound (2).

2.-5. (canceled).

6. (withdrawn-currently amended): The process according to claim 1[4], wherein the microorganism is enzyme source that selectively produces the S-isomer is a cultured product of *Escherichia coli* HB101 (pNTRS) (FERM BP-08545) or *Escherichia coli* HB101 (pNTRGG1) (FERM BP-7858) and/or an enzyme obtained from any of these microorganisms.

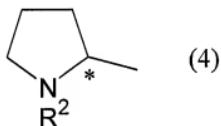
7.-9. (canceled).

10. (previously presented): The process according to claim 1, wherein 5-hydroxy-2-pentanone represented by said formula (1) produced by hydrolyzing 2-acetyl- $\gamma$ -butyrolactone represented by formula (5):

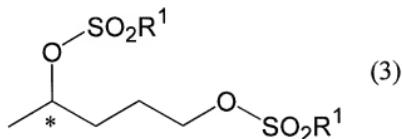


in the presence of an acid is used as a starting material.

11. (withdrawn): A process for producing an optically active 1-substituted 2-methylpyrrolidine represented by formula (4):



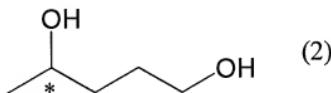
(wherein R<sup>2</sup> represents a hydrogen atom, a hydroxyl group, a methoxy group, a benzyloxy group, a substituted or unsubstituted alkyl group having 1 to 12 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 12 carbon atoms, or a substituted or unsubstituted aryl group having 6 to 12 carbon atoms, and \* represents an asymmetric carbon atom) comprising sulfonylating the optically active 1,4-pentanediol represented by formula (2) produced by the process according to claim 1 to convert it to an optically active disulfonate compound represented by formula (3):



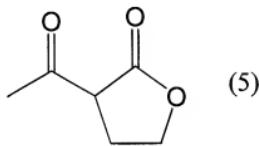
(wherein  $\text{R}^1$  represents a substituted or unsubstituted alkyl group having 1 to 12 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 12 carbon atoms, or a substituted or unsubstituted aryl group having 6 to 12 carbon atoms, and \* represents an asymmetric carbon atom), and reacting the compound with an amine.

12. (withdrawn): The process according to claim 11, wherein  $\text{R}^1$  is a methyl group or a 4-methoxyphenyl group and  $\text{R}^2$  is a benzyl group.

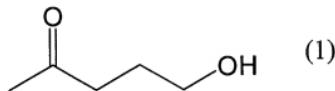
13. (currently amended): A process for producing optically active 1,4-pentanediol represented by formula (2):



(wherein \* represents an asymmetric carbon atom) comprising: hydrolyzing producing an aqueous solution of 2-acetyl- $\gamma$ -butyrolactone represented by formula (5):



in the presence of an acid into 5-hydroxy-2-pentanone represented by formula (1):



by acid hydrolysis and optionally neutralization thereof; and

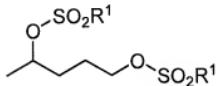
asymmetrically reducing 5-hydroxy-2-pentanone represented by said formula (1) in the aqueous solution to optically active 1,4-pentanediol represented by said formula (2).

14. (withdrawn-new): A process for producing an optically active 1-substituted 2-methylpyrrolidine represented by formula (4):



(wherein R<sup>2</sup> represents a hydrogen atom, a hydroxyl group, a methoxy group, a benzyloxy group, a substituted or unsubstituted alkyl group having 1 to 12 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 12 carbon atoms, or a substituted or unsubstituted aryl group having 6 to 12 carbon atoms, and \* represents an asymmetric carbon atom) comprising

sulfonylating the optically active 1,4-pentanediol represented by formula (2) produced by the process according to claim 13 to convert it to an optically active disulfonate compound represented by formula (3):



(wherein R<sup>1</sup> represents a substituted or unsubstituted alkyl group having 1 to 12 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 12 carbon atoms, or a substituted or unsubstituted aryl group having 6 to 12 carbon atoms, and \* represents an asymmetric carbon atom), and reacting the compound with an amine.

15. (new): The process according to claim 1, wherein the microorganism is *Escherichia coli* HB101 (pNTS1G)(FERM BP-5835), *Escherichia coli* HB101 (pNTFPG)(FERM BP-7117), or *Escherichia coli* HB101 (pNTDRG1)(FERM BP-08458).